HELMINTHOLOGY.—*Draconema: A remarkable genus of marine free-living nematodes.* N. A. Cobb, Bureau of Plant Industry, Communicated by Frederick V. Coville.

Few nematodes, if any, are more remarkable than Draconema. From a comparative anatomical point of view it takes rank with the bifurcated Lepidonema. The main features of Draconema are illustrated in the adjacent cut. Though the head end is very peculiar, all its peculiarities are more or less comprehensible. While the cephalic setae, amphids, mouth, oesophagus, and cardia, all present singular features, yet these features are referable to known types of nematode anatomy. Even the sudden loss in diameter behind the oesophagus, tho unique, is understandable on the supposition that unusual flexibility is required in this region owing to some odd habit of life.

In contemplation of the remainder of the anatomy, however, one becomes lost in amazement, and can only speculate on the nature and function of the complicated longitudinal series of lateral and subventral appendages. These appendages are found fully developed on both sexes, young or adult, and must, therefore, have to do with functions exercised at various stages of growth, and without regard to sex.

As we know little of the habits of Draconema beyond the fact that it occurs on or near red marine algae of strands in various parts of the world, speculation concerning the functions of its peculiar organs may be idle. One might suggest that the form of the body indicates possibly that the species inhabit tubes, which they may be imagined to construct, or which they may find already constructed and adapt to their uses. The existence of such a dwelling would harmonize with the expanded head and with the slimness of body behind the neck. Supposing the head end to be thrust out of the tubular home, the advantages of a limber body in seeking food can be readily understood. So too, the series of tubular organs might fit in with such a confined habit of life, and have to do with the construction and repair of the supposed tube; or with locomotion; or with aëration, by producing currents of fresher water inside the tube.

Of great interest also are the adjacent associated internal ventral organs, the details of which suggest the discharge of important functions. These internal structures are rich in chromatin. Their number and distribution indicate that in some way they are definitely connected with the tubular organs.

From a scientific standpoint it is especially desirable that further observations be made on this remarkable nematode.

The following notes relate to the suggested type species of this new genus.

Draconema cephalata, n. sp. $\frac{2.\ \ 5.3\ \ 12.\ \ -M^{77}\ \ 92.2}{3.9\ \ 5.1\ \ 2.2\ \ 4.8\ \ 2.2}$ 1.5 mm. The transparent, colorless layers of the cuticle are traversed by 800 to 900 plain transverse striae. The striae are rather uniformly fine on the body, but are much coarser on the anterior half of the neck, tho they suddenly cease on the head just behind the amphids.[1]

The fusiform neck ends in a rounded head, set off by the absence of striations. The mouth opening, it would appear, is surrounded by six forward-pointing lips, somewhat longer than they are wide, each rounded in front and supported by a forward-projecting pair of slender chitinous ribs. It is possible that the lips are three in number, and each two-parted. In any case they are so grouped as to form an elevated area on the middle of the head, and are surrounded by six short, forward-pointing setae, having a length about equal to the width of one of the wide cervical annules. The non-striated portion of the head bears numerous arcuate forward-pointing setae of variable size, the largest being half as long as the neck is wide, while the shortest are not very much longer than the minute labial setae already described. The amphids are shaped like the end of a shepherd's crook. Their anterior margins lie close to the lips, their posterior portions near the beginning of the striations. Measured crosswise at the widest part they have a width nearly as great as that of the group of lips when these latter are closed. All the more prominent cephalic setae are on the dorsal side of the head. On the dorsal side of the left amphid, near the striations, there is a pair of stout setae

[1] Proposed new term for the organs hitherto called "lateral organs."

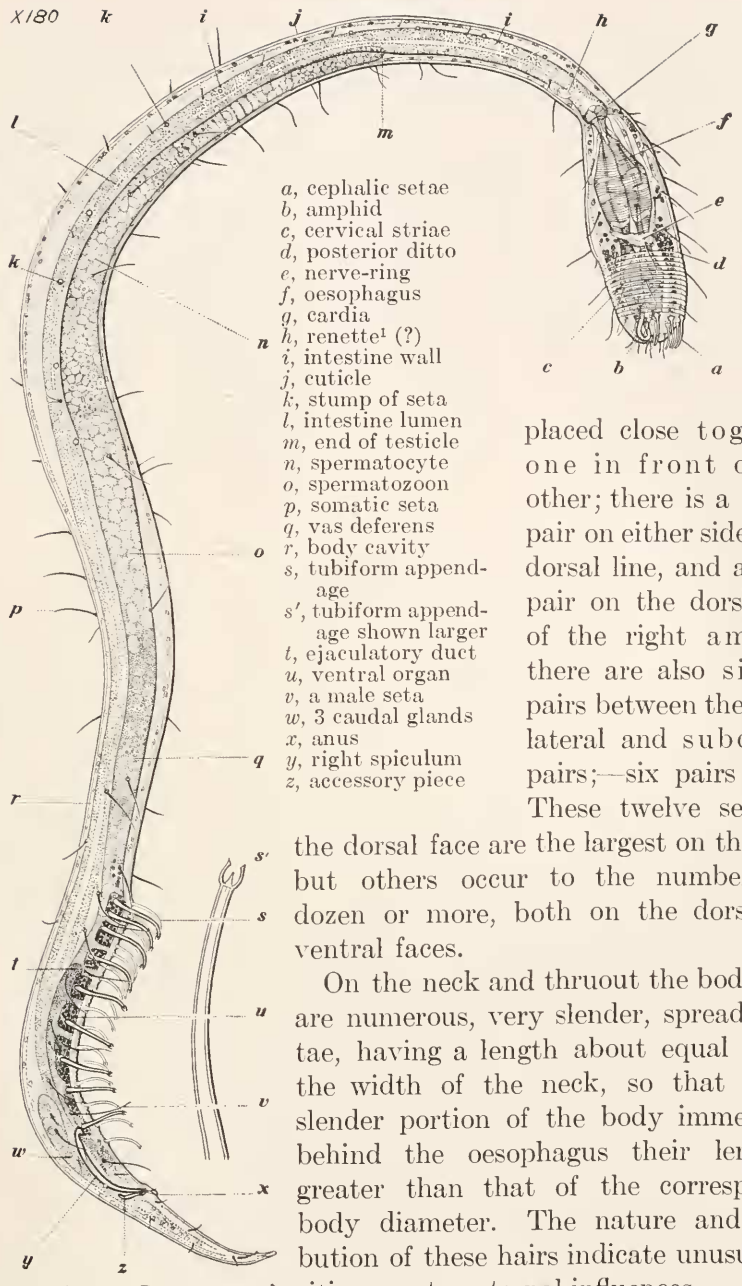

Fig. 1. *Draconema cephalata*

placed close together one in front of the other; there is a similar pair on either side of the dorsal line, and another pair on the dorsal side of the right amphid; there are also similar pairs between these sublateral and subdorsal pairs;—six pairs in all. These twelve setae on the dorsal face are the largest on the head, but others occur to the number of a dozen or more, both on the dorsal and ventral faces.

On the neck and thruout the body there are numerous, very slender, spreading setae, having a length about equal to half the width of the neck, so that on the slender portion of the body immediately behind the oesophagus their length is greater than that of the corresponding body diameter. The nature and distribution of these hairs indicate unusual sensitiveness to external influences.

[1] Proposed new term for organ previously known as the "ventral gland."

There are no eyes.

When the lips are closed the pharynx appears as an elongated, narrow, irregularly fusiform cavity, reaching well into the anterior oesophageal bulb, and ending opposite the anterior cervical striations. The greatest width of the pharynx is about equal to the distance between two successive striations of the adjacent cuticle. Near its hind end it suddenly widens out a little and then contracts again. There are no traces of pharyngeal teeth. The oesophagus is somewhat dumbbell-shaped, and consists of two bulbs connected by a short tube one-third as wide as the neck. The structure of the oesophagus and head suggests that the mouth can be opened widely. The intestine is built of cells of such a size that few are required to complete the circumference—probably two to four.

There are no male ventral supplementary organs of the usual character.

It remains to describe the peculiar series of arcuate tubular organs, found on both sexes on the posterior portion of the body in front of the anus. There are four series of these organs; two lateral and two ventrally submedian. The lateral sets comprise nine pairs. Each organ consists of a colorless, transparent, non-staining, arcuate, hollow tube, curving slightly backwards, but on the whole arranged nearly at right angles to the ventral surface. The outer extremity of each tube is enlarged a little and is distinguished from the remainder of the tube, not only by its width, but by difference in structure, for it is somewhat bell-shaped, and has an axial portion corresponding to the tongue of the bell. The tubes have a diameter about equal to the width of one of the adjacent annules, but are not perfectly uniform in diameter thruout their length, in fact taper gently from base to tip. That portion of the body occupied by the tubular organs is supplied with peculiar internal ventral bodies, the number and position of which correspond, approximately at least, with the number and position of the tubes. It is not that there is one of these bodies to each tube, but rather that all the tubes in the same zone are associated with one of the internal bodies. These cellular bodies are ventral in position and their number is about nine.

The adult female of *Draconema cephalata* is unknown. Females of other undescribed species show the vulva as central and the internal female organs double, symmetrical and reflexed, the rather short ovaries reaching well back towards the vulva. The eggs in these other species are usually prolate and thin-shelled, and few in number, generally only one in each uterus, and appear to be deposited before segmentation begins.

Habitat. Marine algae, or sand at their base, shoal in Kingston Harbor, Jamaica; also the strand of a small island off Port Royal, Jamaica.